Application Part A – Project Description, Organizational, Financial and Legal Information

A-1 Urban Water Conservation Grant Application Cover Sheet

1. Applicant (Organization or affiliation): Tulare County Water Works District # 1
2. Project Title: Alpaugh Water Meter Retrofit Program

3. Person authorized to sign and submit proposal:
   - **Name, Title** Floyd Field, President
   - **Mailing address** P.O. Box 98, Alpaugh, CA 93201
   - **Telephone** (559) 949-8347
   - **Fax**
   - **E-mail**

4. Contact person (if different):
   - **Name, Title**
   - **Mailing address**
   - **Telephone**
   - **Fax**
   - **E-mail**

5. Funds requested (dollar amount): $70,200
6. Applicant funds pledged (local cost share) (dollar amount): $0.00
7. Total project costs (dollar amount): $70,200

8. Estimated net water savings (acre-feet/year): 42 acre-feet/year
   Estimated total amount of water to be saved (acre-feet): 630 acre-feet
   Over 15 years
   Benefit/cost ration of project for applicant: 3.81
   Estimated $/acre-feet of water to be saved: $874/acre-ft

9. Project life (month/year to month/year): 10/01/03 to 5/31/04
10. State Assembly District where the project is to be conducted: District #31

11. State Senate District where the project is to be conducted: District #16

12. Congressional District(s) where the project is to be conducted: District #20

13. County where the project is to be conducted: County of Tulare
14. Do the actions in this application involve physical changes in land use, or potential future changes in land use?
    (b) No: No

A-2 Application Signature Page

See Attached

A-3 Application Checklist

Complete this checklist to confirm all sections of this application package have been completed.

Part A: Project Description, Organizational, Financial and Legal Information
__X__A-1 Urban Water Conservation Grant Application Cover Sheet
__X__A-2 Application Signature Page
__X__A-3 Application Checklist
__X__A-4 Description of project
__X__A-5 Maps
__X__A-6 Statement of work, schedule
__X__A-7 Monitoring and evaluation
__X__A-8 Qualification of applicant and cooperators
__X__A-9 Innovation
__X__A-10 Agency authority
__X__A-11 Operation and maintenance (O&M)
Part B: Engineering and Hydrologic Feasibility (construction projects only)
__X__B-1 Certification statement
__X__B-2 Project reports and previous studies
__X__B-3 Preliminary project plans and specifications
__X__B-4 Construction inspection plans
Part C: Plan for Environmental Documentation and Permitting
__X__C-1 CEQA/NEPA
__X__C-2 Permits, easements, licenses, acquisitions, and certifications
__X__C-3 Local land use plans
__X__C-4 State and local statutes and regulations
Part D: Need for Project and Community Involvement
__X__D-1 Need for project
__X__D-2 Community involvement, support and opposition
Part E: Water Use Efficiency Improvements and Other Benefits
__X__E-1 Water use efficiency improvements
__X__E-2 Other project benefits
Part F: Economic Justification, Benefits to Costs Analysis
__X__F-1 Net water savings
__X__F-2 Project budget and budget justification
__X__F-3 Economic efficiency
__X__Benefit/Cost Analysis Tables 1; 2; 3; 4a, 4b, 4c, 4d; and 5

A-4 Description of project

The Community of Alpaugh is located in southern Tulare County, California, west of State Highway 43 on County Road J22 and at a latitude and longitude of 35:53:16N

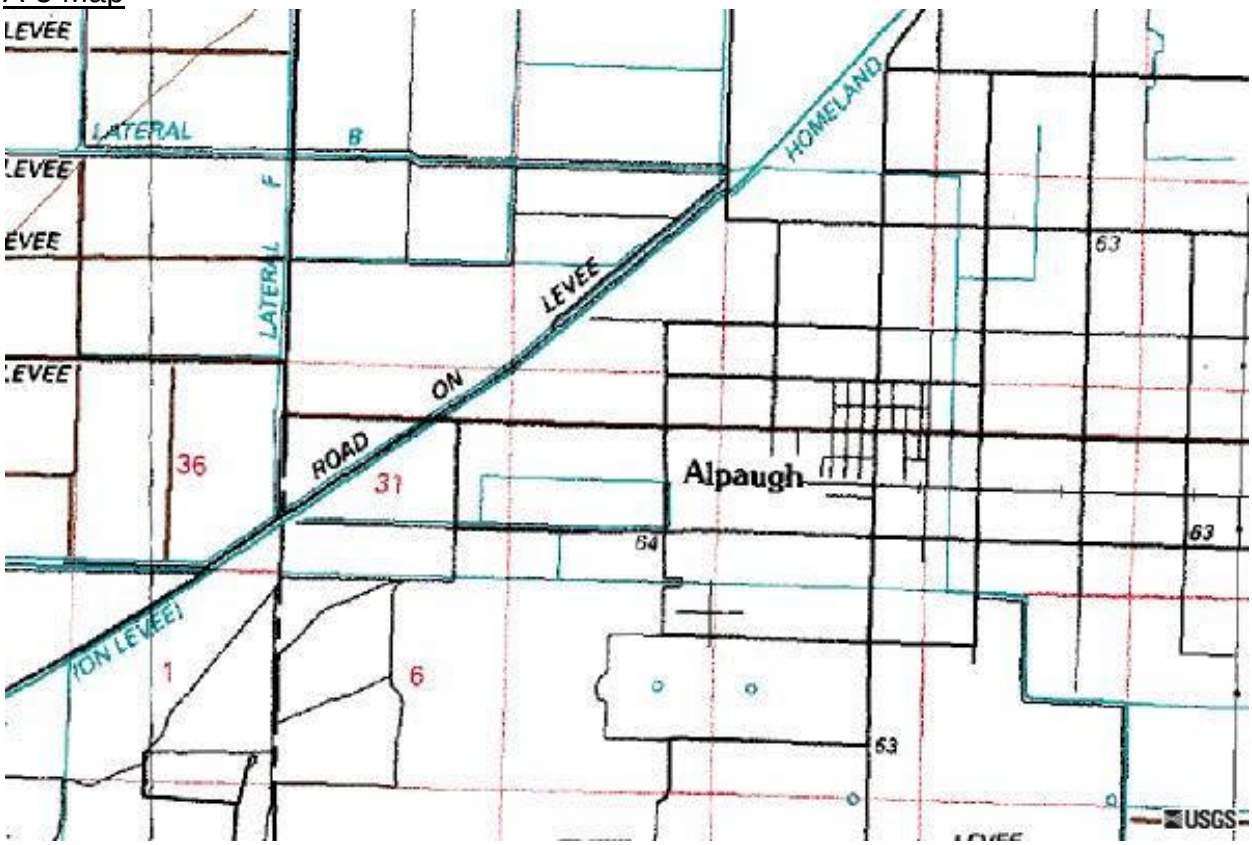
119:29:11W. The Tulare County Waterworks District # 1 (TCWD#1) serves 165 customers and the Alpaugh Irrigation District (AID) serves 125 customers. The TCWD#1 and AID are currently working with the DWR and USDA to fund a complete, water system rehabilitation for the residents of Alpaugh. SB 621 sets aside $2,100,000 from the Prop 13 Infrastructure Rehabilitation Construction Grant Program to both TCWD#1 and AID. This project will replace all water mains and lateral lines and construct a new well system, new well and back-up well in order to provide the residents of Alpaugh with higher quality and more affordable drinking water. Because Alpaugh is situated in a low-income, high unemployment area of the State, it is better to find alternative funding sources that do not place an undue burden, such as a USDA loan, on the residents in Alpaugh.

Thus, as a means to conserve water and avoid the costs of taking a higher loan, the TCWD#1 requests funding from the Water Conservation Grant Program in order to install new water meters for all the served connections, in order to better manage the amount of water use in the community. Currently water users are charged a flat monthly rate that does note promote water conservation.

The TCWD#1 conservatively expects a 15% reduction in water use based on estimates from a 1990 study of meter retrofitting by the City of Davis that shows a savings of at least 15-49%[1] and from two past Urban Water Conservation Grant Applications from the City of Rohnert Park[2], 2001, and Southern California Water Company[3], 2002, that respectively estimate a 15% and 36% reduction in water use. As in the case with Rohnert Park, TCWD#1 will use the conservative estimate of a 15% reduction in water use.

[1] http://www.dcn.davis.ca.us/waterworks/articles/meter80299.html, viewed 11/27/02.
[2] http://www.owue.water.ca.gov/finance/docs/PSP_114.PDF, viewed 11/27/02.
[3] http://www.owue.water.ca.gov/finance/docs/PSP_600.PDF, viewed 11/27/02.

A-5 Map



A-6 Statement of work, schedule

The installation of water meters will affect the entire community of Alpaugh served by both TCWD#1 and AID. The costs for this activity are fairly straightforward and will be the cost of the meters and the labor costs of installing them.

The work schedule for this project is:

Work	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6
Solicit Bids						
Award Contract						
Acquire Permits						
Construction						

A-7 Monitoring and evaluation

Because the community of Alpaugh is not currently metered it is not possible to accurately quantify the amount of water saved as a result of these activities. However, it is still possible to collect data to determine the success of these activities after the completion of the water system improvement project. Once all projects are complete it

will be possible to assess water savings by recording the amount of the monthly electricity bill for pumping and pressurizing the water in the system.

During construction monitoring will be done indirectly by the community after they have attended public meetings to become educated about the construction process and what types of things to expect. This method is important because the community members will have more direct contact with the construction work. Direct monitoring will be done by members from TCWD#1, AID and Self-Help Enterprises as well as the supporting engineers for the overall project. Because both boards are volunteer boards, the costs normally associated with monitoring construction will be offset by volunteer hours.

A-8 Qualification of applicant and cooperators

Floyd Field, President of the Tulare County Waterworks District # 1, will be the project manager with help from both the Alpaugh Irrigation District (AID) and Self-Help Enterprises (SHE), as co-operators, who will provide technical and professional assistance throughout the pre-construction, construction and monitoring and evaluation stages of the project (See Resume). Alpaugh Irrigation District is the water supplier for domestic water to TCWD#1, as well as the domestic water supplier to residents of Alpaugh outside of the TCWD#1's jurisdiction. TCWD#1 currently purchases domestic water from AID and contracts with AID for maintenance and repairs to the system. Self-Help Enterprises is a non-profit organization dedicated to self-help housing, sewer and water development, housing rehabilitation, multifamily housing and homebuyer programs in the San Joaquin Valley of California. Self-Help Enterprises has worked with Alpaugh since 1975 on water, natural gas, housing rehabilitation, and other community development projects.

A-9 Innovation

Not Applicable

A-10 Agency authority

1. Yes, the applicant has the legal authority to enter into a funding contract with the state (See Authorization Resolution).
2. Tulare County Waterworks District # 1 was formed as a non-profit water district in 1918 and is run by volunteer board members (See Formation Resolution).
3. No, the applicant is not required to hold an election prior to entering into a funding contract with the State.
4. No, the funding agreement will not be subject to review and/or approval by other government agencies.
5. No, there is no pending litigation.

A-11 Operation and maintenance (O&M)

The reading of the meters and their repairs will be the responsibility of the TCWD#1 and AID. TCWD#1 currently purchases water for 165 users and contracts with AID for all maintenance and repairs to the water system. A new agreement will be reached to read the meters and record water usage for billing purposes.

Application Part B – Engineering and Hydrologic Feasibility

B-1 Certification Statement

See Attached Statement

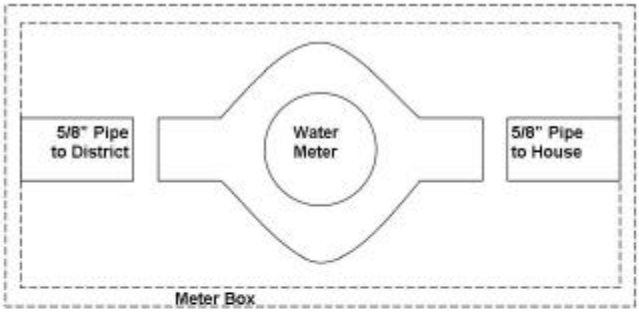
B-2 Project Reports and Previous Studies

There is a Preliminary Engineering Report with amendments by Boyle Engineering from May 2000 that describes the overall water distribution system and well site.

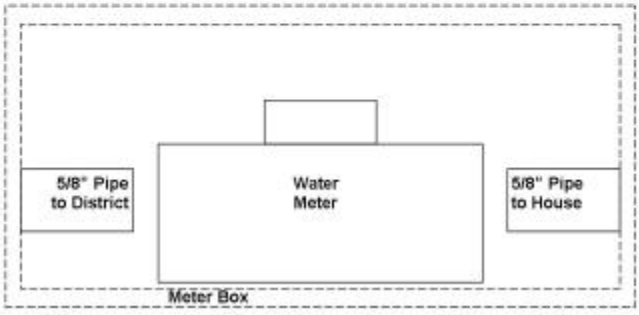
B-3 Preliminary Project Plans and Specifications

The preliminary plan calls for the installation of water meters to fit a 5/8-inch size connection with a meter box.

Top View



Side View



B-4 Construction Inspection Plan

Inspection of the construction will be done by members from TCWD#1 and AID; both are volunteer boards.

Application Part C – Plan for Completion of Environmental Documentation and Permitting Requirements

C-1 California Environmental Quality Act and National Environmental Policy Act

CEQA Article 19, Categorical Exemption, Section 15301:

> "Operation, repair, maintenance, or minor alteration of existing structures or facilities not expanding existing users."

C-2 Permits, Easements, Licenses, Acquisitions, and Certifications

Permits:

For the replacement of existing service lines or the installation of new service lines and meters, each address would be required to apply for a water line permit from the County of Tulare. This permit costs $3.50 per each address.

Easement Rights, Licenses, Land Acquisitions, and Certifications of Approval:

Not Applicable.

C-3 Local Land Use Plans

The land within the community of Alpaugh is zoned as the following:

- R-A, Rural Residential,
- C-1, Neighborhood Commercial Zone, and
- C-2, General Commercial Zone.

The land surrounding Alpaugh is zoned as:

- AE-40, Exclusive Agricultural Zone 40 Acre Minimum and
- AE-80, Exclusive Agricultural Zone 80 Acre Minimum.

C-4 Applicable Legal Requirements

There are no other local, State or Federal laws, statutes, regulations, or ordinances governing the proposed activities.

Application Part D – Need for Project and Community Involvement

D-1 Need for the Project

The existing water system operated by TDWD#1 consists of approximately 18,000 feet of four-inch and smaller pipe, approximately 1,500 feet of six-inch pipe, and approximately 2,000 feet of eight-inch pipe. The actual age of the system is unknown. These pipes vary in material and include polyvinyl chloride (PVC), cast iron, and asbestos cement pipe. There are only two standard fire hydrants connected to the water system and they are located on Center Ave. Blow off valves, 2 ½ inch wharf head types, are located on the water mains at dead end locations. The water system also

includes a 65,000 gallon elevated steel tank, concrete basins with two 15 hp vertical turbine pumps and approximately 205 service connections.

TCWD#1 contracts with AID for the purchase of its water. The primary well, Well No. 9, consists of a vertical turbine pump with a 75 hp electric motor and PVC discharge piping. The pump discharges into a twelve-inch diameter pipeline which crosses the AID's Main Canal and is then routed west parallel to the Main Canal. This pipeline continues to AID's water storage facility where the well water flows into concrete basins enclosed by a metal building. These basins allow some hydrogen sulfide to escape from the well water before being pumped into a 65,000 gallon elevated steel tank. According to AID, the 65,000 gallon elevated steel tank was built in 1915.

As mentioned, TCWD#1 and AID are in the process of applying for funds to rehabilitate the water system in the community of Alpaugh. This rehabilitation serves several purposes: primarily to provide for safe, clean drinking water and secondly to reduce the cost of delivering water to their customers. This activity is consistent with these goals in that the new water meters will allow TCWD#1 and AID to monitor water use and better charge water conservation rates to their customers.

Alpaugh is a low-income community. According to the 2000 census, the population of Alpaugh is 687 people with a median household income of $23,688[4]. Any savings from the installation of water meters will provide a better living for the low-income families of Alpaugh because of potentially lower monthly water bills. The benefit of receiving alternative funds from the DWR Urban Water Conservation Grant Program is a smaller amount of funding from USDA RUS for the meters which would create a smaller loan for TCWD#1 and the potential lower cost of monthly water user.

D-2 Outreach and Community Involvement, Support and Opposition

TCWD#1 has held public meetings to introduce to the community the planned application for this grant. TDWD#1 also has members that serve on Town Council and are members of other local organizations. At this time TCWD#1 has been able to gather letters of support from the following organizations in Alpaugh: AID and the Committee for a Better Education. The TCWD#1 will hold public meetings to keep the community informed of the latest news and occurrences related to the Proposition 13 and USDA RUS funding and activities, as well as to inform the community about the upcoming construction process and their responsibilities.

Application Part E – Water Use Efficiency Improvements and Other Benefits

E-1 Water Use Efficiency Improvements

As stated above, the primary water use efficiency improvement caused by these activities will be the reduction in acquisition costs associated with pumping and pressurizing the lost water. The installation of water meters in the system will allow the

[4] www.census.gov, viewed on 11/27/02.

TCWD#1 to more closely monitor losses from the system than they are currently able to do. Also, water conservation will be achieved through the individual's using less water in an effort to lower their monthly water bill. The use of meters to monitor water loss because of a leaky service line or any other individual loss can be achieved by the individual by reading the meter before and after a known zero-use period. This will prevent future water losses coming from leaks on the property side from going undetected and reduce the same costs of water acquisition and delivery.

E-2 Other Project Benefits

Furthermore, the water savings from the reduction in water use will improve the capacity of the system to meet the future needs of its customers. Less money will be spent trying to keep the system at a healthy water pressure to serve customers. Also, the potential for a lower monthly water bill will transfer funds from purchasing water to other household needs, such as food, health and education.

Application Part F – Economic Justification: Benefits to Costs

F-1 Net Water Savings

The installation of meters will reduce the amount of water use by approximately 15%[5]. Because the system is not currently metered it is not possible to directly account for the total water consumption from past years. However data from various sources allows for the estimation of current water use and potential water savings. This data is, as follows:

- 364 gallons, average daily water consumption per person[6],
- 687 residents in Alpaugh[7],
- 280 acre-feet per year, estimated yearly total water consumption [280 acre-ft/yr = 364 gal/day/person * 365 day/year * 687 people * (1 acre-ft / 325,851 gal)], and
- 15%, estimated reduction in water use.

Thus the net water savings per year can be calculated multiplying the estimated total yearly water consumption by the estimated reduction in water use:

280 acre-feet per year * 0.15 = 42 acre-ft per year.

[5] From http://www.owue.water.ca.gov/finance/docs/PSP_600.PDF, viewed 11/27/02.
[6] From http://aalto.arch.ksu.edu/jwkplan/planimp/Daily%20Water%20Usage.htm, viewed 11/27/02.
[7] See 4.

F-2 Project Budget and Budget Justification

For each meter installation a permit from the County of Tulare is required which costs $3.50 per meter installation. For 300 connections this yields ($3.50/connection * 300 connections) $1,050.

The cost of the meters, meter boxes and their installation is approximately $200[8].

The costs of associated with operation and maintenance will be from reading the meters and any associated repairs as they are necessary. It is estimated that $1,200 will be needed to read the meters. This figure comes from estimating 2 days required to read the meters at a wage of $6.00 per hour for 12 months (16 hours/month * $6.00/month * 12 months = $1152). The maintenance costs are difficult to forecast due to the unexpected frequency of repairs. In order to address this concern, an estimate of $1,200 will also be used for maintenance of the maters and meter boxes.

Currently, the cost to provide water to Alpaugh residents is estimated to be $873.60 per acre-foot. This figure comes from the average cost of water production for the last nine months from February to October 2002 and the estimated average water use per month. The table below shows the monthly cost of water production and the average monthly cost.

Month	Cost of Water Production
February	$9,984.33
March	$16,456.23
April	$19,885.23
May	$34,067.29
June	$30,929.24
July	$18,525.12
August	$23,215.29
September	$15,202.36
October	$15,191.92
Total	$183,457.01
Average	**$20,384.11**

Using the information given in Section F-1 about yearly water consumption, it is possible to estimate the monthly water consumption by dividing 280 acre-feet per year by 12 months in order to get 23.3 acre-feet per month. Dividing the average monthly water cost by the average monthly water consumption ($20,384.11 per month / 23.3 acre-feet per month) generates the cost per acre-foot, **$873.60 per acre-foot**.

[8] From oral communication with Tim Ruiz of Boyle Engineering, 12/02/02.

F-3 Economic Efficiency

The benefits accruing to TCWD#1 will be from the avoided costs of pumping and pressurizing and treating the conserved water. The tables below outline the economic efficiency of this project.

Table 1: Capital Costs

	Capital Cost Category *(a)*	Cost *(b)*	Contingency Percent *(c)*	Contingency $ *(d)* *(bxc)*	Subtotal *(e)* *(b+d)*
(a)	Land Purchase/Easement	0	15.00%	0	0
(b)	Planning/Design/Engineering	0	15.00%	0	0
(c)	Materials/Installation	60,000	15.00%	9,000	69,000
(d)	Structures	0	15.00%	0	0
(e)	Equipment Purchases/Rentals	0	15.00%	0	0
(f)	Environmental Mitigation/Enhancement	0	15.00%	0	0
(g)	Construction/Administration/Overhead	0	15.00%	0	0
(h)	Project Legal/License Fees	1,050	15.00%	158	1,208
(i)	Other	0	15.00%	0	0
(j)	Total (1) (a + ... + i)				70,208
(k)	Capital Recovery Factor: Use Table 6				0.1030
(l)	Annual Capital Costs (j x k)				7,231

Table 2: Annual Operations and Maintenance Costs

Administration *(a)*	Operations *(b)*	Maintenance *(c)*	Other *(d)*	Total *(e)*
0	1,200	1,200	0	2,400

Table 3: Total Annual Costs

Annual Capital Costs (1) *(a)*	Annual O&M Costs (2) *(b)*	Total Annual Costs *(c)* *(a+b)*
7,231	2,400	9,631

Table 4:
Water Supply Benefits
(2002 Dollars)

Net water savings (acre-feet/year) 42

4a. Avoided Costs of Current Supply Sources

Sources of Supply *(a)*	Cost of Water ($/AF) *(b)*	Annual Displaced Water Supply (AF) *(c)*	Annual Avoided Costs ($) *(d) (b x c)*
Groundwater	873.60	42	36691.20
			0
Total			36691.20

Table 4d. Total Water Supply Benefits

(a) **Annual Avoided Costs of Current Supply Sources from 4a, column *(d)***	36,691
(b) **Annual Avoided Costs of Alternative Future Supply Sources from 4b, column *(f)***	0
(c) **Annual Expected Water Sale Revenue from 4c, column *(h)***	0
(d) **Total Net Annual Water Supply Benefit ($)** (a+b+c)	36,691

Table 5:
Benefit/Cost Ratio

Project Benefits ($)(1)		36,691
Project Costs ($)(2)		9,631
Benefit/Cost Ratio		3.81